

CALIFORNIA STATE BOARD OF HEALTH

Weekly

Bulletin

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EDITOR

**Toxin-Antitoxin
Is A Safe Product.**

Nobody wants his child to contract diphtheria. Nobody would willingly refuse a simple means of infallible protection. Yet even among well-informed parents we find a certain hesitation about having the preschool youngsters immunized with toxin-antitoxin. "It's all right," they will say to you, "provided you get good virus." The answer is that the toxin-antitoxin produced today is as harmless as it is efficient.

In the following paragraphs Dr. George W. McCoy of the U. S. Public Health Service, one of the foremost authorities of the world on the subject of antitoxins and serums, gives the facts that every parent should know about the use and production of toxin-antitoxin under the caption:

Some Federal Safeguards of the Manufacture and Distribution of Diphtheria Toxin-Antitoxin Mixture.

Diphtheria toxin-antitoxin mixture has in the last few years come into such general use in the prevention of diphtheria as to occupy a place of importance in the preventive immunization against disease probably second only to smallpox vaccine. Every year thousands of children are immunized, and the effect of this excellent prophylactic measure is being reflected in the lowered diphtheria rate which is evident in localities where much work has been done along this line. This result in the control of a dreaded disease of early

childhood is all the more gratifying in that immunization is accomplished with practically no local or general reactions in the inoculated children. *Very young children unquestionably take toxin-antitoxin mixture better even than those of school age, the ideal age for producing immunity being around the end of the first year of life. By this time the child will have lost the immunity acquired from the mother, and will soon begin to come more generally into contact with other children, with the increase in danger of acquiring diphtheria.* Heaviest mortality rates from diphtheria are encountered in children below the school age, and it is probably safe to say that the immunization of one child of this group will equal the immunization of five school children, in effect on the diphtheria death rate. Some means of reaching this very important group of children is very much needed.

Toxin-antitoxin mixture is prepared only in establishments holding license issued by the Secretary of the Treasury, upon recommendation of the Public Health Service. The service, through the hygienic laboratory, insures that the establishment is properly equipped with both physical apparatus and properly trained personnel to carry out the careful technique of manufacture and testing, before recommending a license. This information is obtained always by means of a careful personal inspection by an officer of the Public Health Service.

The product is prepared, as the name indicates, from diphtheria toxin and diphtheria antitoxin, mixed in such proportions that the former, a poison

derived from the diphtheria bacillus, is almost, but not quite, neutralized by the antitoxin, which is obtained from the blood of a highly immunized horse. Very careful, accurate testing is always done on each lot.

The toxin is usually prepared in the establishment and allowed to age for at least one year. By this time the first rapid deterioration will have taken place. The strength is next accurately determined by inoculation in guinea pigs weighing 250 grams (8-9 ounces). One drop of a good toxin is sufficient to prepare three doses, or one course of immunizing treatments of toxin-antitoxin mixture.

The antitoxin is a specially selected, highly concentrated product, as it is derived from the serum of the horse and it is desired to keep the dose as low as possible. One drop of a good antitoxin is sufficient to prepare 2000 doses of toxin-antitoxin mixture. The antitoxin is also aged to make stable, and then very carefully tested to determine the exact strength expressed in units per cubic centimeter. Guinea pigs are also used for this test.

These two products are next diluted with sterile phenolized salt solution and mixed in such proportions that five human doses will kill a 250-gram guinea pig in from 6 to 20 days, while one human dose will cause a local reaction in the guinea pig, but will only cause paralysis in from 15 to 30 days. It is thus seen that the amount which shows no acute symptoms in the very susceptible guinea pig weighing one-half pound, could not possibly harm a child weighing from 20 to 80 pounds. This exact degree of toxicity is difficult to obtain, and can only be secured by careful measurements of ingredients, the strengths of which are accurately known. Frequent adjustments and retests are usually required.

After the mixture is completed and adjustments of toxicity are made, the entire lot is filtered to sterilize, and final toxicity and sterility tests are applied by the manufacturer. If these tests are satisfactory and the manufacturer considers the mixture suitable for the market, samples of each lot are sent to the hygienic laboratory, where sterility and guinea pig tests are also made. No lot is released for distribution until tests at the hygienic laboratory are satisfactorily completed.

Owing to the tendency of diphtheria toxin to deteriorate, and particularly when diluted, this product is only allowed to remain on the market for six

months, and precautions should be taken to keep in a cold place but not allowed to freeze. Freezing causes a slight turbidity to appear and renders the product inactive.

With the present type of mixture which is in universal use, the original toxin content is one-thirtieth that of the older mixtures, the product is water clear, and with the great care in manufacture, with check testing by different laboratories, the public is assured a safe and effective product which may be employed with confidence.



Los Angeles Shows Diphtheria Reduction.

Dr. George Parish, Health Commissioner of Los Angeles, has made an interesting statement of diphtheria morbidity and mortality in his city since free immunizations have been offered to all applicants. Dr. Parish attributes the reduced rates to the more general use of toxin-antitoxin. The statement, as published in the *Van Nuys News*, reads as follows:

"Surprising results are shown in the fight against diphtheria by the Los Angeles city health department. The number of diphtheria cases has been reduced from 3029 in the fiscal year of 1924 to 1568 in 1926, according to City Health Officer Parish.

This salutary work has followed the use of toxin-antitoxin by the health department in free administration to those who applied for it. Even a more favorable ratio is noted in mortality from this disease during the same period. There were 156 deaths from this cause in 1924 and only 63 in the fiscal year that has just closed, the same report shows.

The city health authorities make bold to say that many of the deaths that did occur could have been avoided, if the parents of children had taken them to their own physicians or to the health department for immunization.

This record shows a marked improvement in the handling of a malady that has been claiming a heavy annual toll in Los Angeles until the use of the toxin-antitoxin was started there.

Dr. Parish cites an instance where not one death from diphtheria was reported last year in forty-one counties with more than 1,000,000 population in Illinois because of the wide practice of immunization.

With the start that the city has made this disease can be entirely eradicated by immunization."

Valley Health Officers Organize.

Health officers of the San Joaquin Valley, representing almost every community between Stockton and Bakersfield, met in Hanford, October 11th, for the purpose of forming a district organization auxiliary to the Health Officers' Section of the League of California Municipalities. A temporary organization was formed with Dr. G. L. Long of Fresno, chairman, and Dr. P. C. Cuneo of Bakersfield, secretary. A committee was named to prepare a report on permanent organization which will be undertaken at a meeting to be held in Fresno during the month of December. This committee consists of Dr. C. Mathewson of Fresno, Dr. L. Larson of Kingsburg, Dr. J. J. Sippy of Stockton and Dr. E. C. Bond of Hanford. About forty health officers and public health nurses attended the meeting at Hanford.

The proposed organization is a revival of the San Joaquin Valley Health Officers' Association, which was active twenty years ago. The new unit will be considered as a unit of the present Health Officers' section of the League of California Municipalities and is to function as such.

May Give December Examination To Nurses.

The State Board of Health will hold an examination for public health nursing certificate in December if a sufficient number of applications are received to warrant so doing; otherwise the next examination will be scheduled for May, 1927.

Nurses desiring to take this examination should file application prior to November 10th. Blanks may be obtained from the offices of the board, 823 Sun-Finance Building, Los Angeles, 727 Forum Building, Sacramento, and 337 State Building, San Francisco.

C. E. A. Winslow, President, American Public Health Association, states that "We possess a more complete knowledge of diphtheria and a more complete power over diphtheria than in the case of any other communicable disease. We can detect the incipient case and the carrier. We can measure natural immunity by the Schick test. We can produce passive immunity by the use of antoxin and active immunity by the use of toxin-antitoxin.

"Every weapon which could be needed to fight this enemy is in our hands, yet diphtheria continues to occupy third place among the communicable diseases and kills eleven or twelve thousand persons in the registration area each year."

Health Officers Newly Appointed.

Mr. J. B. Lyon has been appointed city health officer of Livingston to succeed Mr. E. B. Kemper.

Mr. John V. Clark has been appointed city health officer of San Carlos to succeed Dr. W. H. Gatchell.

LIST OF DISEASES REPORTABLE BY LAW.

ANTHRAX	MUMPS
BERI-BERI	OPHTHALMIA NEONATORUM
BOTULISM	PARATYPHOID FEVER
CEREBROSPINAL MENINGITIS (Epidemic)	PELLAGRA
CHICKENPOX	PLAGUE
CHOLERA, ASIATIC	PNEUMONIA
DENGUE	POLIOMYELITIS
DIPHTHERIA	RABIES
DYSENTERY	ROCKY MOUNTAIN SPOTTED (or Tick) FEVER
ENCEPHALITIS (Epidemic)	SCARLET FEVER
ERYSIPELAS	SMALLPOX
FLUKES	SYPHILIS*
FOOD POISONING	TETANUS
GERMAN MEASLES	TRACHOMA
GLANDERS	TUBERCULOSIS
GONOCOCCUS INFECTION*	TYPHOID FEVER
HOOKWORM	TYPHUS FEVER
INFLUENZA	WHOOPING COUGH
JAUNDICE, INFECTIOUS	YELLOW FEVER
LEPROSY	
MALARIA	
MEASLES	

QUARANTINABLE DISEASES.

CEREBROSPINAL MENINGITIS (Epidemic)	POLIOMYELITIS
CHOLERA, ASIATIC	SCARLET FEVER
DIPHTHERIA	SMALLPOX
ENCEPHALITIS (Epidemic)	TYPHOID FEVER
LEPROSY	TYPHUS FEVER
PLAGUE	YELLOW FEVER

*Reported by office number. Name and address not required.

Just as the modern science of horticulture aims to produce the widest possible variety of beautiful types, so the science of health development of children should aim to free them from the hampering impediments to anything that would enable each child to blossom in the infinite variety which is characteristic of life.—Herbert Hoover.

MORBIDITY.*

Diphtheria.

110 cases of diphtheria have been reported, as follows: Albany 1, Berkeley 3, Oakland 4, San Leandro 2, Butte County 2, Colusa 2, Antioch 1, Pittsburg 1, Fresno County 1, Fresno 1, Selma 1, Humboldt County 8, Kern County 2, Los Angeles County 11, Alhambra 1, Burbank 1, Compton 2, Glendale 2, Long Beach 1, Los Angeles 25, Pasadena 5, Redondo 1, Torrance 1, Orange County 2, Orange 1, Santa Ana 2, Sacramento 5, San Diego 4, San Francisco 12, Stockton 1, Santa Clara County 1, San Jose 1, Santa Clara 1, Solano County 1.

Measles.

406 cases of measles have been reported, as follows: Alameda County 9, Berkeley 24,

*From reports received on October 18th and 19th, for week ending October 16th.

Oakland 134, Piedmont 8, San Leandro 2, Fresno 1, Bakersfield 1, Los Angeles County 1, Beverly Hills 1, Glendale 1, Long Beach 2, Los Angeles 3, Pasadena 1, Monterey County 5, Carmel 3, Salinas 2, Orange County 1, Fullerton 1, Sacramento 5, San Diego 1, San Francisco 93, San Joaquin County 13, Stockton 37, Tracy 1, San Luis Obispo County 1, Burlingame 1, Redwood City 1, Santa Clara County 4, Palo Alto 24, San Jose 17, Sunnyvale 1, Yuba City 3, Red Bluff 4.

Scarlet Fever.

145 cases of scarlet fever have been reported, as follows: Berkeley 2, Oakland 12, San Leandro 2, Sutter Creek 3, Chico 4, Fresno County 1, Fresno 3, Selma 1, Susanville 1, Los Angeles County 14, Glendale 5, Hermosa Beach 1, Huntington Park 1, Long Beach 5, Los Angeles 27, Monrovia 1, Pomona 1, Whittier 2, Signal Hill 1, Maywood 4, Orange County 1, Brea 1, Fullerton 3, Orange 1, Santa Ana 2, Sacramento 2, National City 1, San Diego 12, San Francisco 14, San Joaquin County 2, Stockton 1, Paso Robles 1, Santa Barbara County 1, San Jose 4, Santa Clara 1, Sunnyvale 1, Healdsburg 3, Stanislaus County 1, Tulare County 1, Ventura County 1.

Smallpox.

16 cases of smallpox have been reported, as follows: Chowchilla 1, Placer County 6, Rose-

ville 1, San Joaquin County 1, Lodi 2, Santa Barbara County 5.

Typhoid Fever.

18 cases of typhoid fever have been reported, as follows: Alameda 1, Oakland 1, Kern County 4, Los Angeles County 1, Los Angeles 1, Riverside County 1, Elsinore 2, San Joaquin County 5, Exeter 1, California 1.

Whooping Cough.

52 cases of whooping cough have been reported, as follows: Berkeley 6, Oakland 12, Piedmont 1, Los Angeles County 2, Long Beach 3, Los Angeles 5, Monrovia 3, Pasadena 6, Maywood 2, Orange County 1, San Diego 1, San Francisco 9, Stanislaus County 1.

Poliomyelitis.

Three cases of poliomyelitis have been reported, as follows: Berkeley 1, Los Angeles County 1, Burbank 1.

Encephalitis (Epidemic).

Two cases of epidemic encephalitis have been reported, as follows: Merced County 1, San Mateo County 1.

Meningitis (Epidemic).

Two cases of epidemic meningitis have been reported, as follows: Oakland 1, Fresno 1.

Typhus Fever.

Los Angeles reported one case of typhus fever.

COMMUNICABLE DISEASE REPORTS.

	1926				1925			
	Week ending			Reports for week ending Oct. 16 received by Oct. 19	Week ending			Reports for week ending Oct. 17 received by Oct. 20
	Sept. 25	Oct. 2	Oct. 9		Sept. 26	Oct. 3	Oct. 10	
Anthrax.....	0	0	0	0	0	0	0	0
Botulism.....	0	0	0	0	0	0	0	0
Chickenpox.....	80	82	106	108	41	55	94	74
Diphtheria.....	175	101	146	110	90	84	92	101
Dysentery (Bacillary).....	4	2	1	0	2	2	9	1
Encephalitis (Epidemic).....	2	2	0	2	1	0	1	1
Gonorrhoea.....	94	110	104	96	77	74	99	71
Influenza.....	22	19	18	15	11	5	14	9
Jaundice (Epidemic).....	0	0	0	0	0	0	1	0
Leprosy.....	1	0	2	0	0	0	2	1
Malaria.....	0	1	3	1	4	3	1	3
Measles.....	329	377	367	406	16	20	15	12
Meninigitis (Epidemic).....	2	5	2	2	1	2	1	1
Mumps.....	85	110	101	109	110	102	101	103
Paratyphoid Fever.....	0	3	0	0	2	1	1	0
Pneumonia (Lobar).....	52	25	29	44	24	30	54	30
Poliomyelitis.....	4	6	3	3	22	13	17	10
Rabies (Animal).....	7	6	9	10	10	1	2	3
Rabies (Human).....	0	0	0	0	0	0	0	0
Rocky Mt. Spotted Fever.....	0	0	0	0	0	0	0	0
Scarlet Fever.....	99	119	132	145	53	64	83	89
Smallpox.....	4	12	19	16	20	14	19	21
Syphilis.....	100	110	152	96	116	86	127	118
Tetanus.....	2	1	0	0	1	1	4	2
Trachoma.....	10	14	2	3	3	3	2	3
Trichinosis.....	0	0	0	0	0	0	1	0
Tuberculosis.....	134	163	192	115	183	155	289	165
Typhoid Fever.....	20	30	16	18	28	17	7	13
Typhus Fever.....	0	0	0	1	0	0	0	0
Whooping Cough.....	71	43	48	52	76	45	100	71
Totals.....	1297	1341	1452	1352	891	777	1136	902

CALIFORNIA STATE PRINTING OFFICE